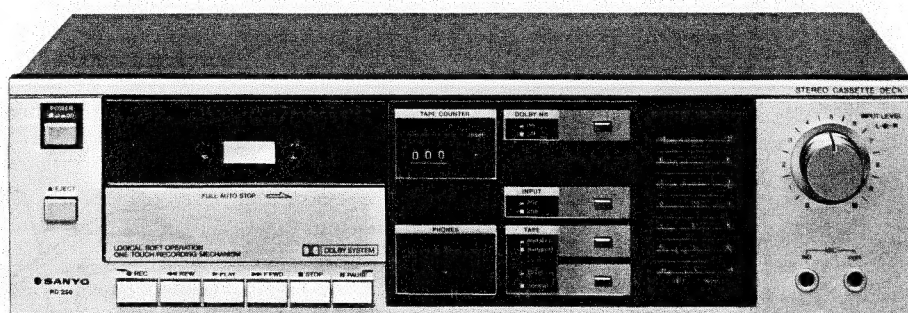


# SERVICE MANUAL

## CASSETTE TAPE DECK

**SANYO****RD 250**

(EUROPE)



### SPECIFICATIONS

#### NOTE:

The below mentioned specifications are mainly based on the IHF measurements standard. They can therefore not directly be compared with specifications based on the DIN standard or other standards.

Tape	Metal, CrO <sub>2</sub> , normal tape	Inputs	MIC: 400 ohms to 10 kohms (0.3 mV)
Recording system	AC bias, 4-track stereo	Outputs	LINE IN: 50 kohms (100 mV) LINE OUT: 2 kohms (0.4 V)
Erasing system	AC erasing, 2-track	Power requirements	PHONES: 8 ohms to 10 kohms
Tape speed	4.75 cm/sec. (1-7/8 i.p.s.)	Power consumption	AC: 220 V, 50 Hz
Rewind and fast forward time	Approx. 110 sec. (C-60)	Dimensions (Approx.)	12 W 420 (W) x 220 (D) x 110 (H) mm
Wow and flutter	0.05% (WRMS)	Weight (Approx.)	(16-1/2" x 8-5/8" x 4-3/8") 4 kg (9 lbs.)
Frequency response	40 - 17,000 Hz (metal) 40 - 16,000 Hz (CrO <sub>2</sub> ) 40 - 13,000 Hz (normal)		
Signal to noise ratio	65 dB (Dolby NR on) (metal tape) 57 dB (Dolby NR off)		

\* Specifications subject to change without notice.

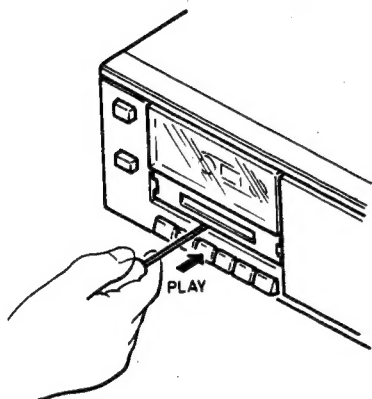
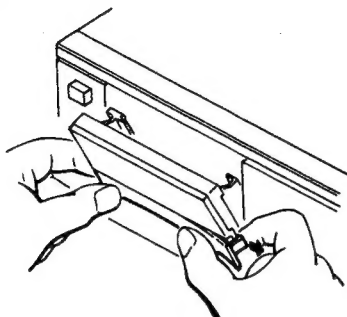
#### NOTE

The POWER switch is mounted on the secondary side and does not disconnect the set from AC-power, even when switched off.

WM-9974

### Head replacement and azimuth adjustment

After replacing the head, demagnetize (clean) it with head cleanings and head silencer. Play back the test tape for azimuth adjustment (VTT-658, 10 kHz for instance), and turn the azimuth adjusting screw with Phillips screwdriver so that the left and right outputs of both SIDE 1 and SIDE 2 of cassette will be maximized.



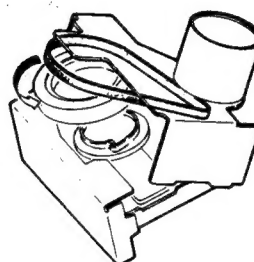
### Mechanism adjustment

- \* Before measurement, clean the head, capstan and pinch roller.
- \* Check torque and tensions.

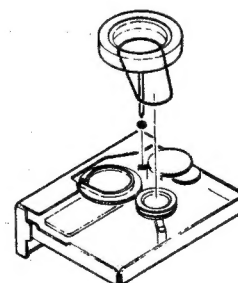
Measuring item	Take-up torque	Back tension	Tape tension
Measurement cassette	PLAY: TW-2111 F.FWD/REW: TW-2231	PLAY/F.FWD: TW-2111 REW: torque gauge	Drive power cassette TW-2412
PLAY	35~60 gr.cm	3~5 gr.cm	Greater than 180 gr.
F.FWD	90~130 gr.cm	3~5 gr.cm	—
REW	90~130 gr.cm	4~8 gr.cm	—

### Belt replacement

1. Flat Belt, Flywheel  
141-2-561T-05271

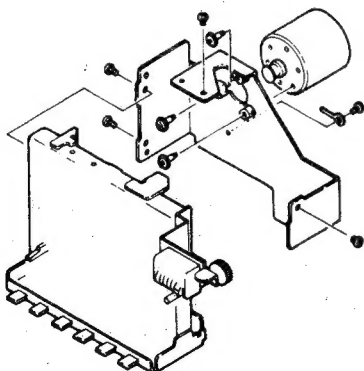


2. Square Belt, Idler  
141-2-564T-23971



### Motor replacement and speed regulation

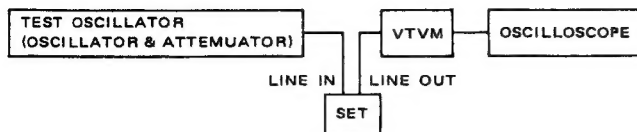
Play back the test tape (MTT-111, 3 kHz for instance), and turn the SVR located on the back of motor with blade screwdriver so that the frequency counter will indicate 3,000 Hz.



## ADJUSTMENT OF AMPLIFIER UNIT

\* Adjust as follows after cleaning the head and adjusting its azimuth properly.

\* Set the input switch at the LINE side.



### (1) Adjustment of playback output

DOLBY NR switch: OFF

Tape selector: NORMAL

Test tape: MTT-150 (Dolby tape)

Play back test tape, and turn SVR701 (L-ch), SVR801 (R-ch) until the playback output becomes 0.55 V.

### (2) Adjustment of level meter

DOLBY NR switch: OFF

Tape selector: NORMAL

Test tape: MTT-150 (Dolby tape)

Play back test tape, and turn SVR703 (L-ch), SVR803 (R-ch) until the +3 dB LED on level meter begins to light up.

### (3) Adjustment of record, playback output

DOLBY NR switch: OFF

Tape selector: METAL

Input signal: -20 dB, 1 kHz

Tape: Metal tape (AC-711 or the like)

1. Feed input signal to record input terminal, and pause the set in record mode.
2. Turn the input level adjusting knob until the record monitor output becomes 0.4 V.
3. Record this input signal.
4. Press the rewind button the rewind the tape to the record starting position.
5. Press the play button.
6. Make sure the playback output is 0.4 V.
7. If other than 0.4 V, turn SVR702 (L-ch), SVR802 (R-ch) to adjust.
8. Repeat steps 3. to 7. to adjust the playback output to 0.4 V precisely.

### (4) Adjustment and checking of record, playback frequency characteristics

#### (4.1) Adjustment with normal tape

DOLBY NR switch: OFF

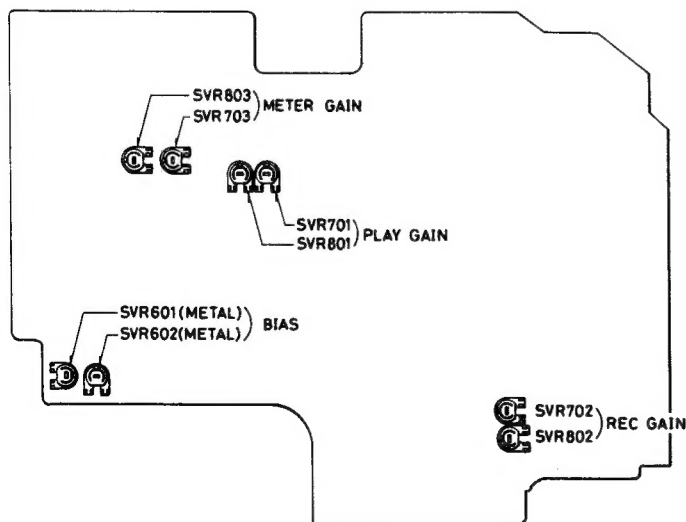
Tape selector: NORMAL

Input signal: -40 dB (1 kHz, 10 kHz)

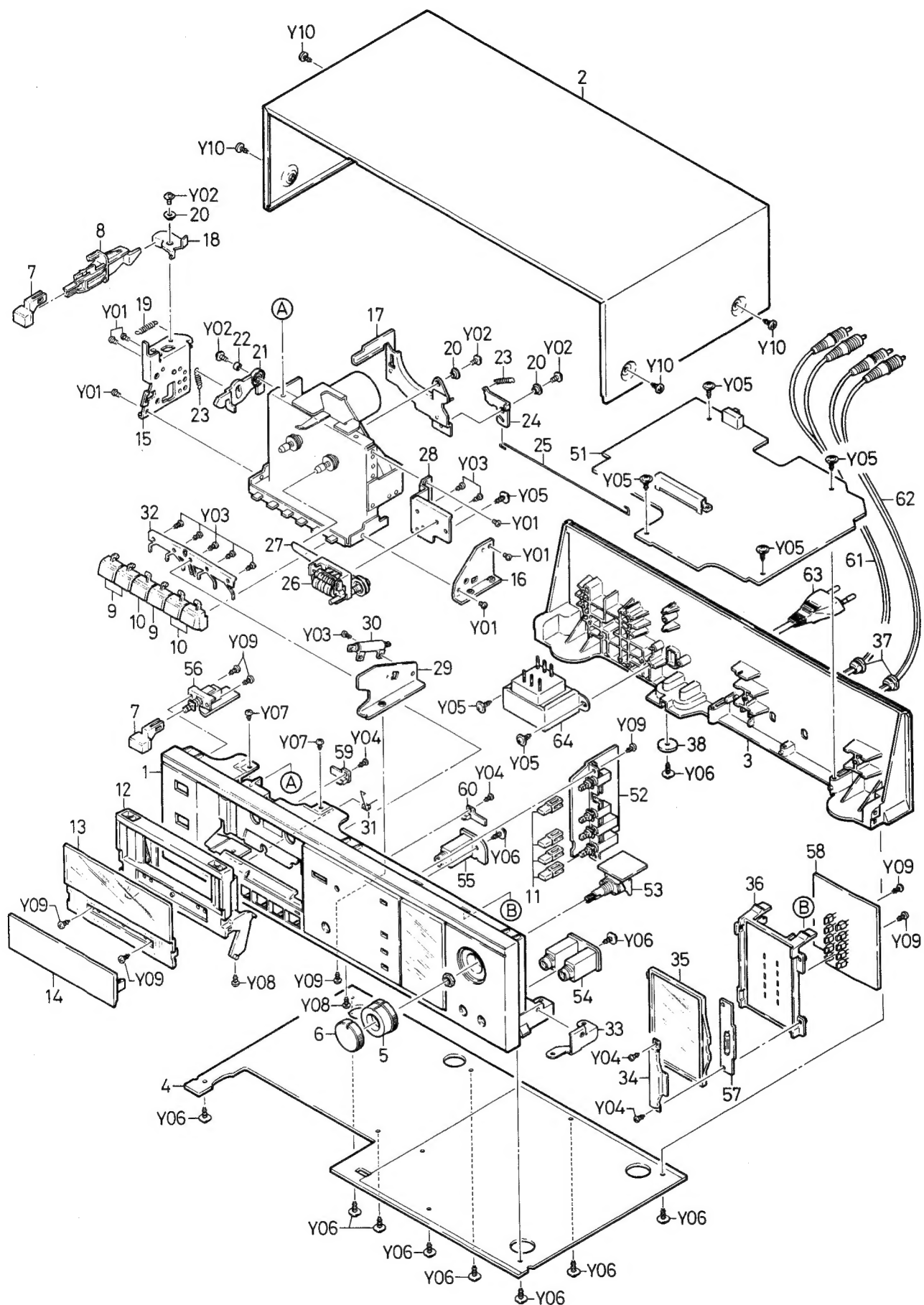
Tape: Normal tape (AC-212 or the like)

1. Set the input level adjusting knob in the position determined in adjustment (3) above.
2. Attenuate the input signal from -20 dB in (3) by further 20 dB to a final -40 dB.
3. Change the frequency of audio frequency signal generator from 1 kHz to 10 kHz, and record the signals. (Change as follows: 1, 10, 1, 10 kHz.)
4. Press the rewind button to rewind the tape to the record starting position.
5. Press the play button.
6. Regarding the playback output of 1 kHz signal as 0 dB, make sure the value of 10 kHz signal is within a range of  $\pm 1$  dB.
7. If out of this range, turn SVR601 (L-ch), SVR602 (R-ch) to adjust.
8. Repeat steps 3. to 7.

## PARTS LOCATION



# CABINET & CHASSIS EXPLODED VIEW



# PARTS LIST

Key No.	Part No.	Description	Q'ty	Key No.	Part No.	Description	Q'ty
PACKING				ELECTRICAL PARTS			
	141-6-133T-38406	Individual Carton	1	61	4-243T-19776	Lead Cord, Gray, LINE OUT	1
	141-6-144T-84200	Pad, Left Side	1	62	4-243T-19777	Lead Cord, Black, LINE IN	1
	141-6-144T-84300	Pad, Right Side	1	63	4-243T-84973	Power Cord	1
	141-6-410T-81106	Instruction Manual	1	64	4-300T-60300	Power Transformer (T901)	1
	141-6-331T-07800	Protector Sheet, 470x800mm	1		141-6-479T-50700	Label, 0/110/220V, Power Transformer mtg.	1
	141-6-231T-40700	Polyethylene Bag, 400x700mm, Set	1				
CABINET & CHASSIS				AMP PCB ASS'Y			
1	141-0-122T-46404	Front Panel Assembly	1	51	141-4-250T-63185	P.C.B. Assembly, AMP.	1
2	141-2-111T-55000	Cabinet	1	IC401		Integrated Circuit, TA7629P	2
3	141-0-126T-36728	Back Lid Assembly	1	501			
4	141-2-125T-29701	Bottom Lid	1	IC701		Integrated Circuit, NJM4562SD	1
5	141-2-163T-81601	Rotary Knob, INPUT LEVEL (L)	1	IC702		Integrated Circuit, NJM4558S	1
6	141-2-163T-81501	Rotary Knob, INPUT LEVEL (R)	1	IC703		Transistor, 2SC536AUD or 2SC1815	2
7	141-2-160T-16501	Push Button, POWER/EJECT	2	Q603		Transistor, 2SD734 or 2SC1959	1
8	141-2-253T-33000	Joint, EJECT	1	Q604		Transistor, 2SC536AUD or 2SC1815	1
9	141-2-160T-16601	Push Button, REC/REW/ F. FWD	3	Q605,606		Transistor, 2SA608 or 2SA1015	2
10	141-2-160T-17302	Push Button, PLAY/STOP/ PAUSE	3	Q607,608		Transistor, 2SC536AUD or 2SC1815	3
11	141-2-160T-09701	Push Button, DOLBY NR/ INPUT/TAPE	4	609		Transistor, 2SC536AUD or 2SC1815	6
12	141-2-224T-14030	Bracket Lid, Cassette	1	Q701,801		Transistor, 2SD400 or 2SC2655	1
13	141-2-124T-37100	Top Lid, Cassette Compartment Lid	1	702,802		Transistor, 2SB544 or 2SA1020	1
14	141-2-153T-85101	Escutcheon, Cassette Compartment Lid	1	703,803		Diode, DS442X	1
15	141-2-351T-54700	Bracket Mounting, Mechanism Left	1	Q901		Diode, DS135E	5
16	141-2-310T-58200	Bracket, Mechanism Right	1	Q902			
17	141-2-732T-02400	Slide, Mechanism Back	1	D602			
18	141-2-742T-67500	Lever, Eject Button Return	1	D901,902			
19	141-2-855T-80300	Spring Coil	1	903,904			
20	141-2-462T-68400	Boss	3	908			
21	141-2-742T-67600	Lever	1	D906,907		Diode, GZA9.1X	2
22	141-2-462T-69200	Boss	1	L401,501	4-255T-04271	MX Coil, 85kHz	2
23	141-2-855T-86900	Spring Coil	2	L601	4-258T-33140	Oscillator Coil	1
24	141-2-310T-73500	Bracket	1	L701,801	4-252T-12922	Choke Coil, 6.8mH	2
25	141-2-852T-79400	Spring Wire, Record/Play	1	L702,802	4-255T-02371	MX Coil	2
26	141-2-811T-11700	Counter, Tape	1	S1	4-238T-55700	Switch, Record/Play	1
27	141-2-564T-28300	Square Belt	1	S7	4-238T-22700	Switch, Beat Cancel	1
28	141-2-812T-11900	Bracket Counter	1	CNP1	4-236T-10200	Plug, 3P, R/P Head	1
29	141-2-310T-79800	Bracket, Damper	1	CNP2	4-236T-19778	Plug, 10P, Mechanism	1
30	141-2-877T-00100	Damper	1	CNS3	4-240T-11271	Socket, 4P, Level Meter	1
31	141-2-855T-79400	Spring Coil	1	CNS4	4-240T-24400	Socket, 2P Erasing Head	1
32	141-2-853T-80500	Spring Plate, Mechanism Push Button	1	SVR601	4-222T-97578	Semi-fixed Resistor, 100K ohm	2
33	141-2-310T-79900	Bracket, Ground	1	602			
34	141-2-329T-08800	Reflector, Lamp	1	SVR701	4-222T-97575	Semi-fixed Resistor, 10K ohm	2
35	141-2-143T-92701	Marking Plate, Level Indicator	1	801			
36	141-2-210T-43401	Bracket, Level Indicator	1	SVR702	4-222T-97576	Semi-fixed Resistor, 20K ohm	2
37	141-2-464T-29700	Fixer, Lead Cord	2	802			
38	123-2-453R-10500	Plastic Washer, Power Cord mtg.	1	SVR703	4-222T-97576	Semi-fixed Resistor, 20K ohm	2
				803			
CABINET & CHASSIS (HARDWARE)				RESISTORS			
Y01		Pan Hd. Forming Screw, 3x4mm	6	All Resistors are Carbon P-type 1/4W, ±5% unless otherwise noted.			
Y02		Pan Hd. Forming Screw with Washer, 3x6mm	4	R400,500		33 ohm, ±10%, 1/2W, Solid	2
Y03		Pan Hd. Tapping Screw, 2.6x6mm	8	R401,501		100K ohm	2
Y04		Pan Hd. Tapping Screw, 2.6x8mm	4	R402,502		180 ohm	2
Y05		Pan Tapping Washer Hd. Screw, 3x10mm	7	R403,503		47K ohm	2
Y06		Pan Tapping Washer Hd. Screw, 3x12mm	11	R404,504		3.3K ohm	2
Y07		Binding Hd. Tapping Screw, 3x6mm	2	R405,505		150K ohm	2
Y08		Binding Hd. Tapping Screw, 3x8mm	2	R407,507		270K ohm	2
Y09		Binding Hd. Tapping Screw, 3x10mm	8				
Y10		Binding Hd. Tapping Screw, 4x10mm	4				

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AMP PCB ASS'Y

## DOLBY/INPUT/TAPE SWITCH PCB ASS'Y

All resistors are Carbon P-type 1/4W,  $\pm 5\%$  unless otherwise noted.

# PARTS LIST

Key No.	Part No.	Description	Q'ty
DOLBY/INPUT/TAPE SWITCH PCB ASS'Y			
C755,855	CAPACITORS	Ceramic 0.015μF ±10% 25V BC-type	2
C760,860		Ceramic 0.0022μF ±5% 25V BC-type	2
INPUT LEVEL VOLUME PCB ASS'Y			
53	141-4-250T-63373	P.C.B. Assembly INPUT LEVEL VOLUME	1
VR701 801	4-220T-02700	Variable Resistor, 50K ohm, INPUT LEVEL	1
R700,800	RESISTORS	Carbon 33K ohm ±5% 1/4W	2
MIC SOCKET PCB ASS'Y			
54	141-4-250T-63473 4-240T-09174	P.C.B. Assembly, MIC SOCKET Socket, MIC	1 2
PHONES PCB ASS'Y			
55	141-4-250T-63573 4-235T-99281	P.C.B. Assembly, PHONES Socket, PHONES	1 1
POWER SWITCH PCB ASS'Y			
56	141-4-250T-63673	P.C.B. Assembly, POWER SWITCH	1
S14	4-238T-37500 141-2-382T-07300	Switch, POWER Terminal	1 2
LAMP PCB ASS'Y			
57 PL1	141-4-250T-63773 4-612T-13700	P.C.B. Assembly, LAMP Lamp, 8V 150mA	1 1
LEVEL INDICATOR PCB ASS'Y			
58	141-4-250T-63871	P.C.B. Assembly, LEVEL INDICATOR	1
IC704 804		Integrated Circuit, LB1403	2
D1,2,3 4,5,6		LED, SLP251B, Green	6
D7,8,9,10		LED, SLP151B, Red	4
	RESISTORS		
All Resistors are Carbon P-type 1/4W, ±5% unless otherwise noted.			
R738,838		10K ohm	2
R742,842		1.8K ohm	2
R743,843		1.8K ohm	2
	CAPACITORS		
C732,832		Electrolytic 10μF 16V	2

Key No.	Part No.	Description	Q'ty
RECORD LED PCB ASS'Y			
59	141-4-250T-64771	P.C.B. Assembly, RECORD LED	1
D20		LED, SLP151B, Red, RECORD	1
PAUSE LED PCB ASS'Y			
60	141-4-250T-64871	P.C.B. Assembly, PAUSE LED	1
D21		LED, SLP151B, Red PAUSE	1



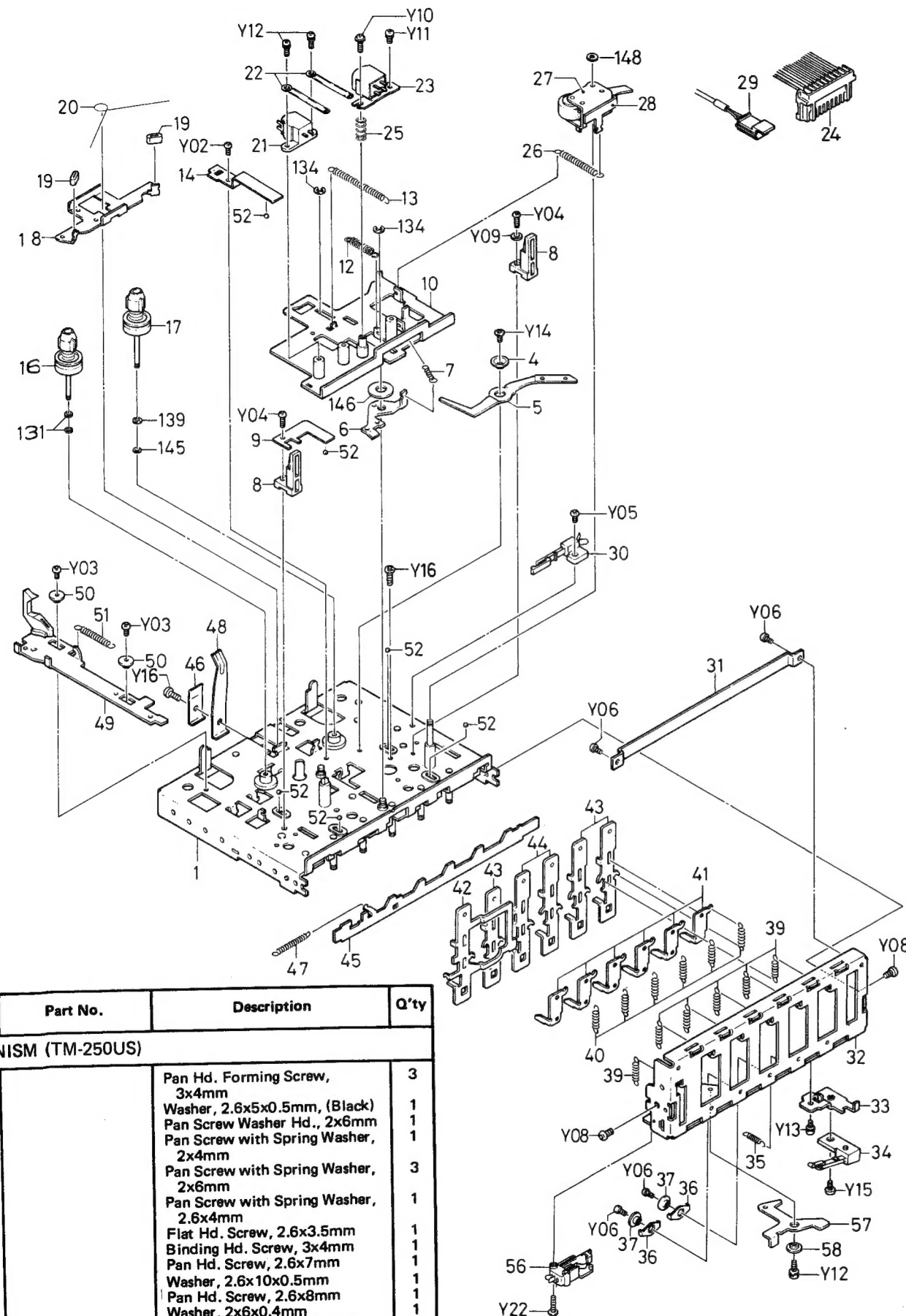
# PARTS LIST

Key No.	Part No.	Description	Q'ty
MECHANISM (TM-250US)			
1	141-0-311T-37200	Chassis Assembly	1
4	141-2-462T-67400	Boss, Lever	1
5	141-2-742T-62900	Lever, PAUSE	1
6	141-2-742T-62600	Lever	1
7	141-2-851T-56100	Spring Coil	1
8	141-2-530T-00800	Guide, Cassette	2
9	141-2-853T-72900	Spring Plate, Head Slide	1
10	141-0-731T-89100	Slide Assembly, Head Slide	1
12	141-2-855T-74900	Spring Coil	1
13	141-2-855T-74800	Spring Coil	1
14	141-2-853T-71000	Spring Plate, Head Slide	1
16	141-0-531T-13300	Reel Plate Assembly, Left	1
17	141-0-531T-13301	Reel Plate Assembly, Right	1
18	141-2-731T-89300	Slide, Brake	1
19	141-2-712T-03401	Brake Shoe	2
20	141-2-852T-68100	Spring Wire, Brake Slide	1
21	4-242T-27500	Magnetic Head, Erase	1
22	141-2-472T-05900	Lug, Lead mtg.	2
23	4-242T-25371	Magnetic Head, Record/Play	1
24	4-240T-51200	Socket, 10P CNS2	1
25	141-2-851T-54500	Spring Coil, Head Azimuth	1
26	141-2-855T-74700	Spring Coil, Pinch Roller	1
27	141-0-545T-07200	Lever Pinch Roller Assembly	1
28	141-2-742T-66500	Lever	1
29	4-235T-60300	Socket, R/P Head CNS1	1
30	4-238T-31200	Switch, PLAY ON, S9	1
31	141-2-352T-50300	Spacer	1
32	141-2-737T-08200	Bracket Slide	1
33	141-2-365T-55000	Bracket Switch	1
34	4-238T-35200	Switch, STOP MUTE, S8	1
35	141-2-856T-02200	Spring Coil	1
36	141-2-742T-60300	Lever	2
37	141-2-462T-67200	Boss	2
38		(Not used)	
39	141-2-855T-76100	Spring Coil	6
40	141-2-855T-80500	Spring Coil	6
41	141-2-731T-92500	Slide	6
42	141-2-731T-92300	Slide, RECORD	1
43	141-2-731T-90901	Slide REW/STOP/PAUSE	1
44	141-2-731T-90900	Slide, PLAY/F. FWD	2
45	141-2-731T-87700	Slide	1
46	141-2-853T-71101	Spring Plate	1
47	141-2-855T-74500	Spring Coil	1
48	141-2-853T-71100	Spring Plate, Cassette	1
49	141-0-731T-89200	Slide Assembly	1
50	141-2-462T-67800	Boss	2
51	141-2-855T-05000	Spring Coil	1
52	141-2-345T-00400	Steel Ball, 2mm	6
53		(Not used)	
54		(Not used)	
55		(Not used)	
56	4-238T-37800	Switch, TRIGGER S12	1
57	141-2-742T-70900	Lever, TRIGGER Switch	1
58	141-2-462T-69800	Boss, TRIGGER Switch	1
61	4-527T-15172	Motor	1
62	141-0-661T-76203	Pulley Motor Assembly	1
63	141-2-445T-11801	Rubber Cushion, Motor	3
64	141-2-421T-27500	Special Screw, Motor	3
65	141-0-378T-11701	Bracket Motor Assembly	1
66	141-2-472T-03700	Lug	1
67		(Not used)	
68	141-2-472T-01201	Lug, Lead mtg.	1
69	141-2-561T-05271	Flat Belt, Flywheel	1
70	141-0-521T-12121	Flywheel Assembly	1
71	141-2-564T-23971	Square Belt, Idler	1
72	141-0-573T-13600	Bearing Assembly	1
73	141-2-581T-19600	Gear	1
74	141-2-581T-19500	Gear	1
75	141-2-581T-19100	Gear, Auto Stop	1
76	141-0-551T-03620	Idler Assembly, PLAY	1
77	141-2-855T-75600	Spring Coil	1
78	141-2-411T-02600	Plate Nut	1
79	141-2-855T-75000	Spring Coil	1
80	141-2-365T-54200	Bracket Switch, PAUSE	1
81	4-231T-71200	Switch, PAUSE, S13	1

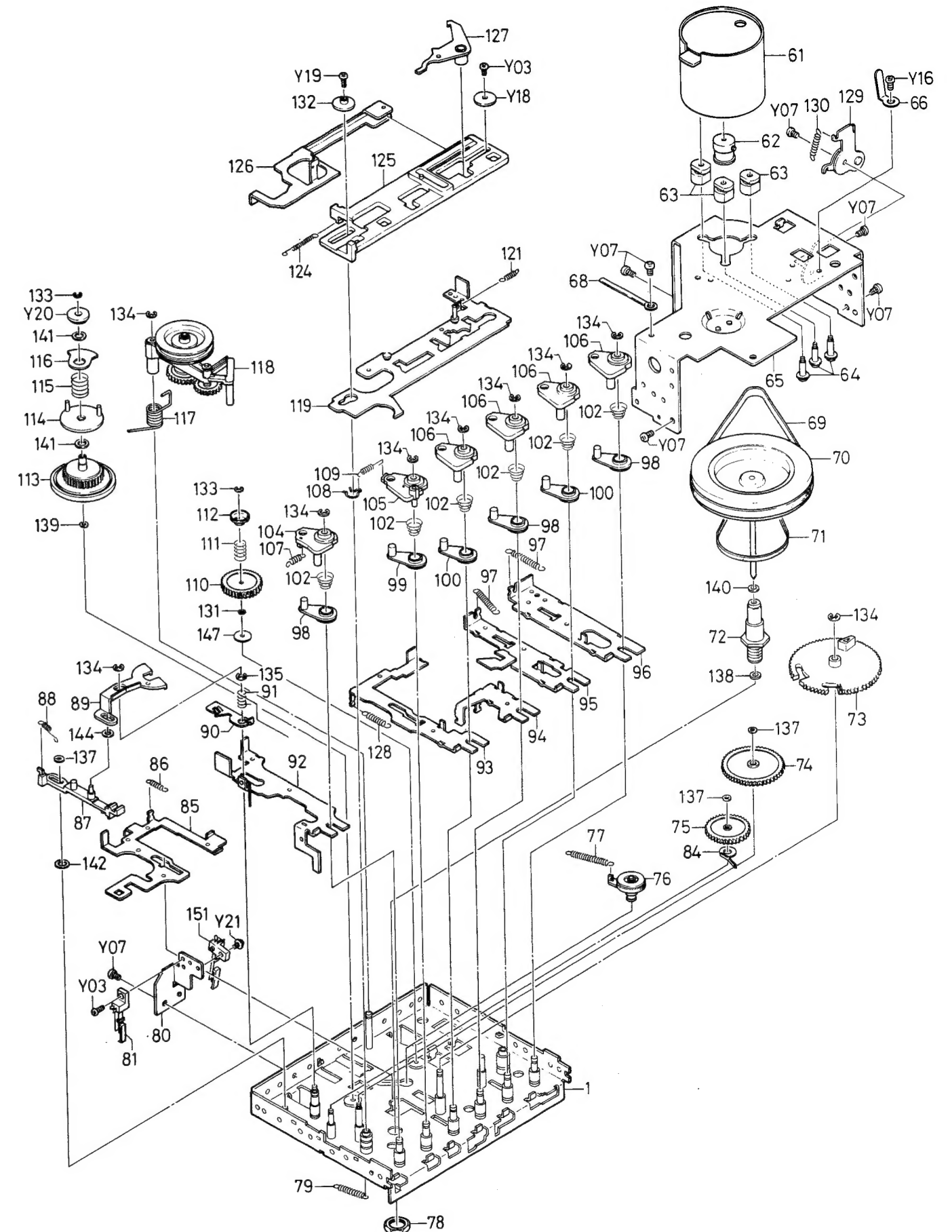
Key No.	Part No.	Description	Q'ty
MECHANISM (TM-250US)			
84	141-2-853T-70900	Spring Plate	1
85	141-2-731T-87100	Slide, Brake	1
86	141-2-855T-75400	Spring Coil	1
87	141-2-731T-86400	Slide	1
88	141-2-856T-01100	Spring Coil	1
89	141-2-731T-86500	Slide	1
90	141-2-614T-06000	Lever Lock, PAUSE	1
91	141-2-852T-68000	Spring Wire	1
92	141-0-731T-87200	Slide Assembly, PAUSE	1
93	141-2-731T-87000	Slide, F. FWD	1
94	141-2-731T-86900	Slide, PLAY	1
95	141-2-731T-86800	Slide, REW	1
96	141-2-731T-86701	Slide, RECORD	1
97	141-2-855T-75300	Spring Coil	2
98	141-0-352T-50602	Spacer Assembly, PAUSE/RECORD/PLAY	3
99	141-0-352T-50604	Spacer Assembly, STOP	1
100	141-0-352T-50603	Spacer Assembly, F.FWD/REW	2
101		(Not used)	
102	141-2-855T-71801	Spring Coil	6
103		(Not used)	
104	141-2-742T-59901	Lever	1
105	141-2-742T-60000	Lever	1
106	141-2-742T-59900	Lever	4
107	141-2-855T-80100	Spring Coil	1
108	141-2-852T-70200	Spring Wire	1
109	141-2-855T-80200	Spring Coil	1
110	141-2-581T-19000	Gear, Reel Pulley	1
111	141-2-855T-68100	Spring Coil, Reel	1
112	141-2-352T-49900	Spacer, Reel	1
113	141-0-661T-32001	Pulley Assembly, Reel	1
114	141-2-671T-06400	Cam	1
115	141-2-855T-76400	Spring Coil	1
116	141-2-352T-48300	Spacer	1
117	141-2-855T-74600	Spring Coil	1
118	141-0-742T-60400	Lever Assembly, Idler	1
119	141-0-731T-87502	Slide Assembly	1
121	141-2-855T-75500	Spring Coil	1
124	141-2-855T-75800	Spring Coil	1
125	141-2-731T-87400	Slide	1
126	141-2-732T-03500	Slide, AUTO STOP	1
127	141-0-742T-60100	Lever Assembly	1
128	141-2-855T-75100	Spring Coil	1
129	141-0-742T-70800	Lever Assembly	1
130	141-2-855T-05000	Spring Coil	1
131	141-2-457T-10200	Special Washer 2.1x3x0.5mm	3
132	141-2-457T-36300	Special Washer	1
133	141-2-457T-23700	Special Washer 1.2x3x0.3mm	2
134	141-2-457T-23000	Special Washer 2x5x0.4mm	10
135	141-2-457T-23100	Special Washer 3x7x0.6mm	1
137	141-2-457T-04100	Special Washer 1.7x4.5x0.5mm	3
138	141-2-457T-04300	Special Washer	1
139	141-2-453T-30102	Washer 2.1x4x0.5mm	2
140	141-2-453T-30202	Washer 2.6x4.7x0.5mm	1
141	141-2-453T-30501	Washer 4.1x6.5x0.25mm	2
142	141-2-453T-30500	Special Washer 4x6.5x0.15mm	1
143		(Not used)	
144	141-2-453T-30301	Washer, 3.1x5.4x0.25mm	1
145	141-2-453T-30101	Special Washer 2.1x4x0.25mm	1
146	141-2-457T-33400	Special Washer 5.2x11.5x0.3mm	1
147	141-2-457T-06200	Special Washer 2.1x9x0.3mm	1
148	141-2-457T-41600	Special Washer, 2x5x0.5mm	1
151	4-238T-09600	Switch, Motor Power, S14	1
HARDWARE			
Y02		Pan Hd. Screw, 2.6x3mm	1
Y03		Pan Hd. Screw, 2.6x4mm	5
Y04		Pan Hd. Screw, 2.6x6mm, (Black)	2
Y05		Pan Hd. Screw, 3x4mm	1
Y06		Pan Hd. Forming Screw, 2.6x4mm	4
Y07		Pan Hd. Forming Screw, 3x4mm	8



**MECHANISM EXPLODED VIEW (1)(2)**



Key No.	Part No.	Description	Q'ty
<b>MECHANISM (TM-250US)</b>			
Y08		Pan Hd. Forming Screw, 3x4mm	3
Y09		Washer, 2.6x5x0.5mm, (Black)	1
Y10		Pan Screw Washer Hd., 2x6mm	1
Y11		Pan Screw with Spring Washer, 2x4mm	1
Y12		Pan Screw with Spring Washer, 2x6mm	3
Y13		Pan Screw with Spring Washer, 2.6x4mm	1
Y14		Flat Hd. Screw, 2.6x3.5mm	1
Y15		Binding Hd. Screw, 3x4mm	1
Y16		Pan Hd. Screw, 2.6x7mm	1
Y18		Washer, 2.6x10x0.5mm	1
Y19		Pan Hd. Screw, 2.6x8mm	1
Y20		Washer, 2x6x0.4mm	1
Y21		Pan Screw Washer Hd., 2x4mm	1
Y22		Pan Screw Washer Hd., 2x8mm	1



SCHEMATIC DIAGRAM

